

# Hardware I/O Comparisons

**Key:** Colored Cells Indicates  
Supported with Avid Software

**(Yes)** = Supported by Hardware  
**(-)** = Not Supported by

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| Features / Functionality | HDX-SDI<br>MOTU | HD Express<br>MOTU | Notes<br>MOTU         |
|--------------------------|-----------------|--------------------|-----------------------|
| <b>Video Formats</b>     |                 |                    |                       |
| SD - PAL 24p             | Yes             | Yes                | No Audio Pull Up/Down |
| SD - PAL 25p             | Yes             | Yes                |                       |
| SD - PAL 25i             | Yes             | Yes                |                       |
| SD - NTSC 23.976p        | Yes             | Yes                |                       |
| SD - NTSC 24p            | Yes             | Yes                | No Audio Pull Up/Down |
| SD - NTSC 30i            | Yes             | Yes                |                       |
| HD - 720p 23.976         | Yes             | Yes                |                       |
| HD - 720p 25             | Yes             | Yes                |                       |
| HD - 720p 29.97          | Yes             | Yes                |                       |
| HD - 720p 50             | Yes             | Yes                |                       |
| HD - 720p 59.94          | Yes             | Yes                |                       |
| HD - 720p 60             | Yes             | Yes                |                       |
| HD - 1080i 50            | Yes             | Yes                |                       |
| HD - 1080i 59.94         | Yes             | Yes                |                       |
| HD - 1080i 60            | Yes             | Yes                |                       |
| HD - 1080PsF 23.976      | Yes             | Yes                |                       |
| HD - 1080PsF 24          | Yes             | Yes                |                       |
| HD - 1080PsF 25          | Yes             | Yes                |                       |
| HD - 1080PsF 29.97       | Yes             | Yes                |                       |
| HD - 1080PsF 30          | Yes             | Yes                |                       |
| HD - 1080p 23.976        | Yes             | Yes                |                       |
| HD - 1080p 24            | Yes             | Yes                |                       |
| HD - 1080p 25            | Yes             | Yes                |                       |
| HD - 1080p 29.97         | Yes             | Yes                |                       |
| HD - 1080p 30            | Yes             | Yes                |                       |
| HD - 1080p 47.96         | -               | -                  |                       |
| HD - 1080p 48            | -               | -                  |                       |
| HD - 1080p 50            | -               | -                  |                       |
| HD - 1080p 60            | -               | -                  |                       |
| 2K - 47.96i              | -               | -                  |                       |
| 2K - 48i                 | -               | -                  |                       |
| 2K - 50i                 | -               | -                  |                       |
| 2K - 59.94i              | -               | -                  |                       |
| 2K - 60i                 | -               | -                  |                       |
| 2K - 14.98PsF            | -               | -                  |                       |
| 2K - 15PsF               | -               | -                  |                       |
| 2K - 18.98PsF            | -               | -                  |                       |
| 2K - 19PsF               | -               | -                  |                       |

| Features / Functionality                                            | HDX-SDI<br>MOTU | HD Express<br>MOTU | Notes<br>MOTU       |
|---------------------------------------------------------------------|-----------------|--------------------|---------------------|
| 2K - 23.98PsF                                                       | -               | -                  |                     |
| 2K - 24PsF                                                          | -               | -                  |                     |
| 2K - 25PsF                                                          | -               | -                  |                     |
| 2K - 23.976p                                                        | -               | -                  |                     |
| 2K - 24p                                                            | -               | -                  |                     |
| 2K - 25p                                                            | -               | -                  |                     |
| 2K - 29.97p                                                         | -               | -                  |                     |
| 2K - 30p                                                            | -               | -                  |                     |
| 2K - 47.96p                                                         | -               | -                  |                     |
| 2K - 48p                                                            | -               | -                  |                     |
| 2K - 50p                                                            | -               | -                  |                     |
| 2K - 59.94p                                                         | -               | -                  |                     |
| 2K - 60p                                                            | -               | -                  |                     |
| 2k - 120p                                                           | -               | -                  |                     |
| 4K - 23.98PsF                                                       | -               | -                  |                     |
| 4K - 24PsF                                                          | -               | -                  |                     |
| 4K - 25PsF                                                          | -               | -                  |                     |
| 4K - 23.976p                                                        | -               | -                  |                     |
| 4K - 24p                                                            | -               | -                  |                     |
| 4K - 25p                                                            | -               | -                  |                     |
| 4K - 29.97p                                                         | -               | -                  |                     |
| 4K - 30p                                                            | -               | -                  |                     |
| 4K - 48p                                                            | -               | -                  |                     |
| 4K - 50p                                                            | -               | -                  |                     |
| 4K - 59.94p                                                         | -               | -                  |                     |
| 4K - 60p                                                            | -               | -                  |                     |
| 4k - 120p                                                           | -               | -                  |                     |
| <b>HW Video Color Space/Sampling/Precision Support</b>              |                 |                    |                     |
| YUV 4:2:2                                                           | Yes             | Yes                |                     |
| RGB 444                                                             | -               | -                  |                     |
| 8 Bit                                                               | Yes             | Yes                |                     |
| 10 Bit                                                              | Yes             | Yes                |                     |
| 12 Bit                                                              | -               | -                  |                     |
| <b>Audio Formats/Functionality Support</b>                          |                 |                    |                     |
| S.R. - 96kHz                                                        | Yes             | Yes                |                     |
| S.R. - 88.2kHz                                                      | Yes             | Yes                |                     |
| S.R. - 48kHz                                                        | Yes             | Yes                |                     |
| S.R. - 44.1kHz                                                      | Yes             | Yes                |                     |
| S.R. - 32kHz                                                        | -               | -                  |                     |
| S.R. - Pull-down / Pull-up                                          | -               | -                  |                     |
| S.R. - Audio Conversion                                             | Yes (2 ch)      | Yes (2 ch)         | AES or S/PDIF input |
| 16 Bit                                                              | Yes             | Yes                |                     |
| 24 Bit                                                              | Yes             | Yes                |                     |
| Audio Mixing (Routing, Mapping for 5.1, Mix all Channels to St.)    | Yes             | Yes                | Done in Software    |
| Audio Input Gain Controls                                           | Yes             | Yes                | Analog Input Only   |
| Audio Pass-through Mixing (Monitor mixing the audio being captured) | Yes             | Yes                | Done in Software    |
| Audio Hardware (Surround to Stereo) Down-Mix Monitoring             | -               | -                  |                     |
| <b>Input Connections (Video/Audio)</b>                              |                 |                    |                     |

| Features / Functionality                                    | HDX-SDI<br>MOTU        | HD Express<br>MOTU | Notes<br>MOTU |
|-------------------------------------------------------------|------------------------|--------------------|---------------|
| SDI 1.5G (Video)                                            | Yes<br>(4:2:2 10b)     | -                  |               |
| SDI 3G (Video)                                              | -                      | -                  |               |
| SDI (Audio)                                                 | Yes (8 ch)             | -                  |               |
| SDI "Multiple Bridging" Dual Spigot Modes - (Video)         | -                      | -                  |               |
| Analog - Composite (Video)                                  | Yes                    | Yes                |               |
| Analog - Svideo (Video)                                     | Yes                    | Yes                |               |
| Analog - SD YCbCr Component (Video)                         | Yes                    | Yes                |               |
| Analog - HD YCbCr/RGB Component (Video)                     | Yes                    | Yes                |               |
| HDMI 1.3a (Video)                                           | Yes                    | Yes                |               |
| HDMI 1.4 (Video)                                            | -                      | -                  |               |
| HDMI 1.3a (Audio) 8 Channels                                | Yes                    | Yes                |               |
| HDMI 1.4 (Audio) 8 Channels                                 | -                      | -                  |               |
| ADAT Optical (Audio) 8 Channels                             | -                      | -                  |               |
| S/PDIF Coaxial (Audio)                                      | -                      | Yes (2ch)          |               |
| S/PDIF Optical (Audio)                                      | -                      | -                  |               |
| AES/EBU (Audio)                                             | Yes (8 ch)             | -                  |               |
| Microphone Input /Phantom Power (Audio)                     | -                      | -                  |               |
| Analog XLR "Pro Level +4" (Audio)                           | -                      | -                  |               |
| Analog 1/4" TRS "Pro Level +4" (Audio)                      | Yes (8 ch)             | -                  |               |
| Analog RCA "Consumer level -10" (Audio)                     | Yes (2ch)              | Yes (2ch)          |               |
| <b>Output Connections (Video/Audio)</b>                     |                        |                    |               |
| SDI 1.5G (Video)                                            | Yes (2)<br>(4:2:2 10b) | -                  |               |
| SDI 3G (Video)                                              | -                      | -                  |               |
| SDI (Audio)                                                 | Yes (8 ch)             | -                  |               |
| SDI "Multiple Bridging" Dual Spigot Modes - (Video)         | -                      | -                  |               |
| Analog - Composite (Video)                                  | Yes                    | Yes                |               |
| Analog - Svideo (Video)                                     | Yes                    | Yes                |               |
| Analog - SD YCbCr Component (Video)                         | Yes                    | Yes                |               |
| Analog - HD YCbCr/RGB Component (Video)                     | Yes                    | Yes                |               |
| HDMI 1.3a (Video)                                           | Yes                    | Yes                |               |
| HDMI 1.4 (Video)                                            | -                      | -                  |               |
| HDMI 1.3a (Audio) 8 Channels                                | Yes                    | Yes                |               |
| HDMI 1.4 (Audio) 8 Channels                                 | -                      | -                  |               |
| HDMI Config (Automatically configures to connected display) | -                      | -                  |               |
| DVI (Video)                                                 | Yes                    | Yes                |               |
| Display Port (Video)                                        | -                      | -                  |               |
| Stereo Headphone Jack with Volume Knob (Audio)              | Yes                    | Yes                |               |
| Analog 1/4" Monitor Out (Audio)                             | -                      | -                  |               |
| Analog XLR "Pro Level +4" (Audio)                           | -                      | -                  |               |
| Analog 1/4" TRS "Pro Level +4" (Audio)                      | Yes (8 ch)             | -                  |               |
| Analog RCA "Consumer level -10" (Audio)                     | -                      | Yes (8 ch)         |               |
| ADAT Optical (Audio) 8 Channels                             | -                      | -                  |               |
| S/PDIF Coaxial (Audio)                                      | -                      | Yes (2ch)          |               |

| Features / Functionality                                                                 | HDX-SDI<br>MOTU | HD Express<br>MOTU | Notes<br>MOTU          |
|------------------------------------------------------------------------------------------|-----------------|--------------------|------------------------|
| S/PDIF Optical (Audio)                                                                   | -               | -                  |                        |
| AES/EBU (Audio)                                                                          | Yes (8 ch)      | -                  |                        |
| <b>Clock Source (Selectable / Detectable)</b>                                            |                 |                    |                        |
| Genlock/Reference Clock (BBG or Tri-Level)                                               | Yes             | -                  |                        |
| Genlock/Reference Clock (BBG or Tri-Level) Output/Pass-through                           | Yes             | -                  |                        |
| Internal Clock                                                                           | Yes             | Yes                |                        |
| S/PDIF Optical or Coaxial                                                                | -               | Yes                |                        |
| ADAT Optical                                                                             | -               | -                  |                        |
| SDI (SD & HD)                                                                            | Yes             | -                  |                        |
| AES/EBU                                                                                  | Yes             | -                  |                        |
| HDMI                                                                                     | Yes             | Yes                |                        |
| Word Clock                                                                               | -               | -                  |                        |
| <b>Hardware Scaling/Processing</b>                                                       |                 |                    |                        |
| Raster Scaling Acceleration                                                              | -               | -                  |                        |
| Down-Scaling/Conversion (HD to SD)                                                       | -               | -                  |                        |
| Up-Scaling/Conversion (SD to HD)                                                         | -               | -                  |                        |
| Cross-Conversion (720HD to 1080HD)                                                       | -               | -                  |                        |
| Colorspace Conversion                                                                    | -               | -                  |                        |
| Hardware deinterlacing                                                                   | -               | -                  |                        |
| Real- Time Frame Rate Conversion (2:3:2:3 & 2:3:3:2 Cadences)                            | -               | -                  |                        |
| 3:2 Pull-Down                                                                            | -               | -                  |                        |
| Real-Time Keyer (Alpha Ch over video, matte or framebuffer over incoming video or matte) | -               | -                  |                        |
| 3D Processing (Full Frame/Dual Stream)                                                   | -               | -                  |                        |
| 3D Processing (Frame Compatible/Frame Packed)                                            | Yes             | Yes                |                        |
| DNxHD Codec Module                                                                       | -               | -                  | Open I/O Not Supported |
| AVC-I Codec Module                                                                       | -               | -                  | Open I/O Not Supported |
| H.264 Codec (Encode)                                                                     | -               | -                  |                        |
| <b>Computer Interface</b>                                                                |                 |                    |                        |
| PCI Express 8 lane, compatible with 8 and 16 lane PCIe slots                             | -               | -                  |                        |
| PCI Express 4 lane, compatible with 4, 8 and 16 lane PCIe slots                          | -               | -                  |                        |
| PCI Express 1 lane, compatible with 1, 4, 8 and 16 lane PCIe slots                       | Yes             | Yes                |                        |

| Features / Functionality                                                             | HDX-SDI<br>MOTU | HD Express<br>MOTU | Notes<br>MOTU                                |
|--------------------------------------------------------------------------------------|-----------------|--------------------|----------------------------------------------|
| ExpressCard/34 Adapter (1 lane)                                                      | Yes             | Yes                |                                              |
| Thunderbolt Adapter                                                                  | -               | -                  |                                              |
| Thunderbolt                                                                          | -               | -                  |                                              |
| USB 3.0                                                                              | -               | -                  |                                              |
| Firewire 800                                                                         | -               | -                  |                                              |
| <b>Miscellaneous</b>                                                                 |                 |                    |                                              |
| Copy Protection:<br>HDMI input is unable to capture from copy protected HDMI sources | Yes             | Yes                |                                              |
| Device Control (RS-422)                                                              | Yes             | -                  |                                              |
| Ancillary Data RP188 Timecode In                                                     | Yes             | -                  | Open I/O Not Supported                       |
| Ancillary Data RP188 Timecode Out                                                    | Yes             | -                  | Open I/O Not Supported                       |
| Ancillary Data NTSC (Closed Captioning)                                              | Yes             | Yes                | Open I/O Not Supported                       |
| Ancillary Data HD-SDI (Closed Captioning)                                            | Yes             | -                  | Open I/O Not Supported                       |
| SDI VITC Read for 3:2 Pull-Down Removal                                              | -               | -                  |                                              |
| 1D LUT Support                                                                       | Yes             | Yes                |                                              |
| Built-in safe area, safe title and letterbox generator                               | -               | -                  |                                              |
| LTC Input                                                                            | Yes             | -                  | Open I/O Not Supported                       |
| LTC Output                                                                           | Yes             | -                  | Open I/O Not Supported                       |
| Expandable Breakout Box (Cost of unit is already added to row 5)                     | -               | -                  |                                              |
| Video Satellite Support with Pro Tools                                               | -               | -                  |                                              |
| Audio Punch-In                                                                       | Yes             | Yes                | Supported in MC/SY/NC 6.0.3/10.0.3 and above |
| Hardware Release                                                                     | Yes             | Yes                | Supported in MC/SY/NC 6.0.3/10.0.3 and above |